

## Appendix 5

### MOBILE6.2 Input and Ouput Files



## MOBILE6 input files

Two scenarios of Inspection/Maintenance (I/M) were developed for MOBILE6.2 inputs: with I/M program in place and no I/M program in place. I/M program affected only NOx emission factor. I/M programs were simply removed to develop MOBILE6.2 input files for No I/M program scenario. No I/M input is followed by I/M input.

The inputs to MOBILE6.2 are grouped into three categories: Header inputs, run inputs, and scenario inputs. The input values used in the MOBILE6.2 runs are specified and explained below.

### Header Section

1. MOBILE6 INPUT FILE: indicates that the MOBILE6.2 input file is a regular command file rather than a batch file.

### Run Data Section

1. EXPAND LDT EFS: directs MOBILE6.2 to display EFs by 6 LDT classes.  
EXPAND HDDV EFS: directs MOBILE6.2 to display EFs by 8 HDDV classes.  
EXPAND HDGV EFS: directs MOBILE6.2 to display EFs by 8 HDGV classes.  
EXPAND BUS EFS: directs MOBILE6.2 to report EFs for gas, urban, and school bus categories separately.
2. I/M PROGRAM: 1 1977 2050 1 T/O LOADED IDLE indicates the program start and end dates, frequency of testing, and test type. There are five components of the I/M program modeled; a loaded idle test for heavy duty gasoline vehicles (shown in the example in Appendix 5.9.2), a transient idle test (I/M240 modeled as a surrogate for the I/M147 test) for light duty cars and trucks through model year 1995, a loaded idle test for light duty cars and trucks of model years 1967 to 1980, an on-board diagnostic (OBD) exhaust test for model year 1996 and newer vehicles, and an OBD evaporative test for the same vehicles. The remaining four occurrences of this command are as follows:  
I/M PROGRAM: 2 1977 2050 2 T/O IM240 - relating to the transient idle I/M240 program modeled as a surrogate for the I/M147 program.  
I/M PROGRAM: 3 1977 2050 1 T/O LOADED IDLE - relating to the loaded idle program for model year 1967-1980 light duty cars and trucks.  
I/M PROGRAM: 4 2001 2050 2 T/O OBD I/M - relating to the exhaust portion of the OBD test.  
I/M PROGRAM: 5 2001 2050 2 T/O EVAP OBD & GC - relating to the evaporative and gas cap portion of the OBD test.

3. I/M MODEL YEARS: 1 1967 2050 indicates the first and last model years affected by the given component of the I/M program. The inputs shown above indicate that model years 1967 and newer are tested by component 1 of the I/M program. The remaining four occurrences of this command are as follows:

I/M MODEL YEARS: 2 1981 1995 - relating to the transient idle I/M240 program modeled as a surrogate for the I/M147 program.

I/M MODEL YEARS: 3 1967 1980 - relating to the loaded idle program for model year 1967-1980 light duty cars and trucks.

I/M MODEL YEARS: 4 1996 2050 - relating to the exhaust portion of the OBD test.

I/M MODEL YEARS: 5 1996 2050 - relating to the evaporative and gas cap portion of the OBD test.

4. I/M VEHICLES: 1 11111 22222222 2 indicates that for the first component of the I/M program (1), the five vehicle categories LDGV, LDGT1, LDGT2, LDGT3, and LDGT4 are not subject to this portion of the I/M program (indicated by "1") while HDGV2B, HDGV3, HDGV4, HDGV5, HDGV6, HDGV7, HDGV8A, HDGV8B, and gasoline buses are covered (indicated by "2"). The remaining four occurrences of this command are as follows:

I/M VEHICLES: 2 22222 1111111 1 indicates that the opposite vehicle classes are subject to the transient idle I/M240 program modeled as a surrogate for the I/M147 program. This selection of vehicle classes is also applied to the remaining three portions of the I/M program.

5. I/M STRINGENCY: 1 28.0 indicates that the initial test failure rate for pre-1981 LDGVs and pre-1984 LDGTs is 28.0 percent. This stringency rate is also applied to the remaining portions of the I/M program.
6. I/M COMPLIANCE: 1 97.0 indicates that the fraction of the total vehicle fleet subject to the I/M program that passes the I/M test or receives a waiver is 97.0 percent. This compliance rate is also applied to the remaining portion of the I/M program.
7. I/M WAIVER RATES: 1 1.3 1.0 indicates that the fraction of vehicles that fail the I/M program is 1.3 for pre-1981 model years and 1.0 percent for 1981 and later model years. These waiver rates are also applied to the remaining portion of the I/M program.
8. I/M GRACE PERIOD: 1 5 indicates that vehicles less than 5 years old are exempted from the I/M program. This exemption is identical for all portions of the I/M program.
9. I/M CUTPOINTS: 2 CUTPNT05.d indicates that MOBILE6.2 reads the external data file "CUTPNT05.d" for the I/M cutpoint values for HC, CO, and NOx. There are 25 values for each vehicle class and pollutant, for the most recent 25 model years, starting with the youngest vehicle. This data is only input for the I/M240 program.

10. ANTI-TAMP PROGRAM :  
87 75 80 22222 22222222 2 11 097. 22111222  
indicates the nature of the anti-tampering program. Specifically, this portion of the anti-tampering program began in 1987 and covers model year vehicles 1975 to 1980. Vehicle classes subject to the inspection (indicated by a "2") include LDGV, LDGT1, LDGT2, LDGT3, LDGT4, HDGV2B, HDGV3, HDGV4, HDGV5, HDGV6, HDGV7, HDGV8A, HDGV8B, and gasoline powered buses. The test is performed annually. The test has a 97 percent compliance rate. The parameters tested include air pump disablement, catalyst removal, evaporative system disablement, PCV system disablement, and missing gas cap. The parameters not tested are fuel inlet restrictor disablement, tailpipe lead deposit test, and EGR disablement. A second data line indicates that the same test is also performed on model year 1981 to 1995 vehicles, but with the LDGV, LDGT1, LDGT2, LDGT3, and LDGT4 classes omitted because those vehicles are subject to the transient I/M or OBD test.
11. REG DIST: 02reg05.d indicates that vehicle registration distributions by age for the 16 composite vehicle types are read by MOBILE6.2 from an external data file, called 02reg05.d.
12. DIESEL FRACTIONS: indicates the user-supplied diesel sales fractions. This input is followed by 350 fractional values representing the fraction of the 14 vehicle classes internally examined by MOBILE6.2 and 25 most recent model years that are diesel vehicles. As an example, the first value, 0.0009, indicates that for the most recent model year of light duty vehicles, 0.09 percent of the vehicles sold are diesel.

#### Scenario Section

1. SCENARIO RECORD: Allows the user to enter a name to identify the scenario being run.
2. PARTICULATE EF: PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV specifies six external data files that contain the particulate emission factors. MOBILE6.2 reads PMGZML.CSV for gasoline vehicle zero mile particulate emission factors, PMGDR1.CSV for gasoline vehicle deterioration rate particulate emission factors for all vehicle ages from 1 to the age specified variable X, PMGDR2.CSV for gasoline vehicle deterioration rate particulate emission factors for all vehicle ages from X+1 to age 25, PMDZML.CSV for diesel zero mile particulate emission factors, PMDDR1.CSV for diesel vehicle deterioration rate particulate emission factors for all vehicle ages from 1 to the age specified variable X, PMDDR2.CSV for diesel vehicle deterioration rate particulate emission factors for all vehicle ages from X+1 to age 25, The values of X for gasoline and diesel vehicles are specified in gasoline and diesel vehicle zero mile particulate emission factor files, respectively.
3. PARTICLE SIZE: 10.0 indicates that particulate matter emission factors are reported in term of PM10. PARTICLE SIZE: 2.5 indicates that particulate emission factors are reported in term of PM2.5.
4. DIESEL SULFUR: 309.0 specifies average diesel fuel sulfur level 309 ppm.

5. CALENDAR YEAR: 2005 specifies the calendar year 2005 for which emission factors are to be calculated.
6. EVALUATION MONTH: 7 indicates that the month to be modeled is July.
7. ALTITUDE: 1 indicates the geographic area modeled was low altitude.
8. MIN/MAX TEMPERATURE: 56. 97. provides the model with the daily minimum and maximum temperatures.
9. FUEL RVP: 8.0 Indicates that the average Reid Vapor Pressure of the gasoline sold during this time period is 8.0 pounds per square inch. This estimate is based upon raw gasoline data provided by the Arizona Department of Weights and Measures.
10. FUEL PROGRAM: 2 S instructs MOBILE6.2 that the gasoline in use will be reformulated gasoline for the southern region.

## MOBILE6.2 Input File for I/M scenario: PM10, NOx, SOx, and NH<sub>3</sub>

```
MOBILE6 INPUT FILE :
PARTICULATES :

RUN DATA
EXPAND LDT EFS      :
EXPAND HDDV EFS      :
EXPAND HDGV EFS      :
EXPAND BUS EFS      :
I/M PROGRAM          : 1 1977 2050 1 T/O LOADED/IDLE
I/M MODEL YEARS      : 1 1967 2050
I/M VEHICLES         : 1 11111 22222222 2
I/M STRINGENCY        : 1 28.0
I/M COMPLIANCE        : 1 97.0
I/M WAIVER RATES     : 1 1.3 1.0
I/M GRACE PERIOD     : 1 5
I/M PROGRAM          : 2 1977 2050 2 T/O IM240
I/M MODEL YEARS      : 2 1981 1995
I/M VEHICLES         : 2 22222 11111111 1
I/M STRINGENCY        : 2 28.0
I/M COMPLIANCE        : 2 97.0
I/M WAIVER RATES     : 2 1.3 1.0
I/M GRACE PERIOD     : 2 5
I/M CUTPOINTS        : 2 CUTPNT05.d
I/M PROGRAM          : 3 1977 2050 1 T/O LOADED/IDLE
I/M MODEL YEARS      : 3 1967 1980
I/M VEHICLES         : 3 22222 11111111 1
I/M STRINGENCY        : 3 28.0
I/M COMPLIANCE        : 3 97.0
I/M WAIVER RATES     : 3 1.3 1.0
I/M PROGRAM          : 4 2001 2050 2 T/O OBD I/M
I/M MODEL YEARS      : 4 1996 2050
I/M VEHICLES         : 4 22222 11111111 1
I/M STRINGENCY        : 4 28.0
I/M COMPLIANCE        : 4 97.0
I/M WAIVER RATES     : 4 1.3 1.0
I/M GRACE PERIOD     : 4 5
I/M PROGRAM          : 5 2001 2050 2 T/O EVAP OBD & GC
I/M MODEL YEARS      : 5 1996 2050
I/M VEHICLES         : 5 22222 11111111 1
I/M STRINGENCY        : 5 28.0
I/M COMPLIANCE        : 5 97.0
I/M WAIVER RATES     : 5 1.3 1.0
I/M GRACE PERIOD     : 5 5

ANTI-TAMP PROG       :
87 75 80 22222 22222222 2 11 097. 22111222
ANTI-TAMP PROG       :
87 81 95 11111 22222222 2 11 097. 22111222
```

\*the tech12.d file must be located with Mobile6 execution file  
\*the user tech file tech12.lme should be renamed as tech12.d  
\*Two more I/M programs should not have overlapped motor vehicles.

```
REG DIST            : 02reg05.d
DIESEL FRACTIONS   :
0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009
0.0006 0.0001 0.0003 0.0006 0.0013 0.0004 0.0004 0.0001 0.0027 0.0032
0.0097 0.0162 0.0241 0.0510 0.0706
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033
0.0048 0.0120 0.0223 0.0656 0.0616
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033
0.0048 0.0120 0.0223 0.0656 0.0616
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124
0.0135 0.0169 0.0209 0.0256 0.0013
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124
0.0135 0.0169 0.0209 0.0256 0.0013
```

0.1998	0.1998	0.1998	0.1998	0.1998	0.1998	0.1998	0.1998	0.1998	0.1998	0.1998	0.1998
0.2578	0.2515	0.3263	0.2784	0.2963	0.2384	0.2058	0.1756	0.1958	0.2726		
0.2743	0.3004	0.2918	0.2859	0.0138							
0.6774	0.6774	0.6774	0.6774	0.6774	0.6774	0.6774	0.6774	0.6774	0.6774	0.6774	0.6774
0.7715	0.7910	0.8105	0.8068	0.8280	0.8477	0.7940	0.7488	0.7789	0.7842		
0.6145	0.5139	0.5032	0.4277	0.0079							
0.8606	0.8606	0.8606	0.8606	0.8606	0.8606	0.8606	0.8606	0.8606	0.8606	0.8606	0.8606
0.8473	0.8048	0.8331	0.7901	0.7316	0.7275	0.7158	0.5647	0.3178	0.2207		
0.1968	0.1570	0.0738	0.0341	0.0414							
0.4647	0.4647	0.4647	0.4647	0.4647	0.4647	0.4647	0.4647	0.4647	0.4647	0.4647	0.4647
0.4384	0.3670	0.4125	0.3462	0.2771	0.2730	0.2616	0.1543	0.0615	0.0383		
0.0333	0.0255	0.0111	0.0049	0.0060							
0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
0.6078	0.5246	0.5767	0.5289	0.5788	0.5617	0.4537	0.4216	0.4734	0.4705		
0.4525	0.4310	0.3569	0.3690	0.4413							
0.8563	0.8563	0.8563	0.8563	0.8563	0.8563	0.8563	0.8563	0.8563	0.8563	0.8563	0.8563
0.8443	0.7943	0.8266	0.7972	0.8279	0.8177	0.7440	0.7184	0.7588	0.7567		
0.7431	0.7261	0.6602	0.6717	0.7344							
0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992	0.9992
0.9989	0.9987	0.9989	0.9977	0.9984	0.9982	0.9979	0.9969	0.9978	0.9980		
0.9979	0.9976	0.9969	0.9978	0.9982							
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9585	0.9585	0.9585	0.9585	0.9585	0.9585	0.9585	0.9585	0.9585	0.9585	0.9585	0.9585
0.8857	0.8525	0.8795	0.9900	0.9105	0.8760	0.7710	0.7502	0.7345	0.6733		
0.5155	0.3845	0.3238	0.3260	0.2639							

SCENARIO RECORD : I/M Scenario  
PARTICULATE EF : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV  
PARTICLE SIZE : 10.0  
DIESEL SULFUR : 309.0  
CALENDAR YEAR : 2005  
EVALUATION MONTH : 7  
ALTITUDE : 1  
MIN/MAX TEMPERATURE: 56. 97.  
FUEL RVP : 8.0  
FUEL PROGRAM : 2 S

END OF RUN

## MOBILE6.2 Input File for I/M scenario: PM2.5

```
MOBILE6 INPUT FILE :  
PARTICULATES :  
  
RUN DATA  
EXPAND LDT EFS :  
EXPAND HDDV EFS :  
EXPAND HDGV EFS :  
EXPAND BUS EFS :  
I/M PROGRAM : 1 1977 2050 1 T/O LOADED/IDLE  
I/M MODEL YEARS : 1 1967 2050  
I/M VEHICLES : 1 11111 22222222 2  
I/M STRINGENCY : 1 28.0  
I/M COMPLIANCE : 1 97.0  
I/M WAIVER RATES : 1 1.3 1.0  
I/M GRACE PERIOD : 1 5  
I/M PROGRAM : 2 1977 2050 2 T/O IM240  
I/M MODEL YEARS : 2 1981 1995  
I/M VEHICLES : 2 22222 11111111 1  
I/M STRINGENCY : 2 28.0  
I/M COMPLIANCE : 2 97.0  
I/M WAIVER RATES : 2 1.3 1.0  
I/M GRACE PERIOD : 2 5  
I/M CUTPOINTS : 2 CUTPNT05.d  
I/M PROGRAM : 3 1977 2050 1 T/O LOADED/IDLE  
I/M MODEL YEARS : 3 1967 1980  
I/M VEHICLES : 3 22222 11111111 1  
I/M STRINGENCY : 3 28.0  
I/M COMPLIANCE : 3 97.0  
I/M WAIVER RATES : 3 1.3 1.0  
I/M PROGRAM : 4 2001 2050 2 T/O OBD I/M  
I/M MODEL YEARS : 4 1996 2050  
I/M VEHICLES : 4 22222 11111111 1  
I/M STRINGENCY : 4 28.0  
I/M COMPLIANCE : 4 97.0  
I/M WAIVER RATES : 4 1.3 1.0  
I/M GRACE PERIOD : 4 5  
I/M PROGRAM : 5 2001 2050 2 T/O EVAP OBD & GC  
I/M MODEL YEARS : 5 1996 2050  
I/M VEHICLES : 5 22222 11111111 1  
I/M STRINGENCY : 5 28.0  
I/M COMPLIANCE : 5 97.0  
I/M WAIVER RATES : 5 1.3 1.0  
I/M GRACE PERIOD : 5 5  
  
ANTI-TAMP PROG :  
87 75 80 22222 22222222 2 11 097. 22111222  
ANTI-TAMP PROG :  
87 81 95 11111 22222222 2 11 097. 22111222
```

\*the tech12.d file must be located with Mobile6 execution file  
\*the user tech file tech12.1me should be renamed as tech12.d  
\*Two more I/M programs should not have overlapped motor vehicles.

```
REG DIST : 02reg05.d  
DIESEL FRACTIONS :  
0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009  
0.0006 0.0001 0.0003 0.0006 0.0013 0.0004 0.0004 0.0001 0.0027 0.0032  
0.0097 0.0162 0.0241 0.0510 0.0706  
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000  
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033  
0.0048 0.0120 0.0223 0.0656 0.0616  
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000  
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033  
0.0048 0.0120 0.0223 0.0656 0.0616  
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126  
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124  
0.0135 0.0169 0.0209 0.0256 0.0013  
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126  
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124
```

```

0.0135 0.0169 0.0209 0.0256 0.0013
0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998
0.2578 0.2515 0.3263 0.2784 0.2963 0.2384 0.2058 0.1756 0.1958 0.2726
0.2743 0.3004 0.2918 0.2859 0.0138
0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774
0.7715 0.7910 0.8105 0.8068 0.8280 0.8477 0.7940 0.7488 0.7789 0.7842
0.6145 0.5139 0.5032 0.4277 0.0079
0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606
0.8473 0.8048 0.8331 0.7901 0.7316 0.7275 0.7158 0.5647 0.3178 0.2207
0.1968 0.1570 0.0738 0.0341 0.0414
0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647
0.4384 0.3670 0.4125 0.3462 0.2771 0.2730 0.2616 0.1543 0.0615 0.0383
0.0333 0.0255 0.0111 0.0049 0.0060
0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300
0.6078 0.5246 0.5767 0.5289 0.5788 0.5617 0.4537 0.4216 0.4734 0.4705
0.4525 0.4310 0.3569 0.3690 0.4413
0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563
0.8443 0.7943 0.8266 0.7972 0.8279 0.8177 0.7440 0.7184 0.7588 0.7567
0.7431 0.7261 0.6602 0.6717 0.7344
0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992
0.9989 0.9987 0.9989 0.9977 0.9984 0.9982 0.9979 0.9969 0.9978 0.9980
0.9979 0.9976 0.9969 0.9978 0.9982
1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000
0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585
0.8857 0.8525 0.8795 0.9900 0.9105 0.8760 0.7710 0.7502 0.7345 0.6733
0.5155 0.3845 0.3238 0.3260 0.2639

```

```

SCENARIO RECORD      : I/M Scenario
PARTICULATE EF       : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
PARTICLE SIZE         : 2.5
DIESEL SULFUR        : 309.0
CALENDAR YEAR        : 2005
EVALUATION MONTH     : 7
ALTITUDE              : 1
MIN/MAX TEMPERATURE: 56. 97.
FUEL RVP              : 8.0
FUEL PROGRAM          : 2 S

```

END OF RUN

## MOBILE6.2 Input File for no I/M scenario: PM10, NOx, SOx, and NH<sub>3</sub>

```
MOBILE6 INPUT FILE :
PARTICULATES      :

RUN DATA
EXPAND LDT EFS      :
EXPAND HDDV EFS      :
EXPAND HDGV EFS      :
EXPAND BUS EFS      :
REG DIST           : 02reg05.d
DIESEL FRACTIONS   :

0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009
0.0006 0.0001 0.0003 0.0006 0.0013 0.0004 0.0004 0.0001 0.0027 0.0032
0.0097 0.0162 0.0241 0.0510 0.0706
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033
0.0048 0.0120 0.0223 0.0656 0.0616
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033
0.0048 0.0120 0.0223 0.0656 0.0616
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124
0.0135 0.0159 0.0209 0.0256 0.0013
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124
0.0135 0.0169 0.0209 0.0256 0.0013
0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998
0.2578 0.2515 0.3263 0.2784 0.2963 0.2384 0.2058 0.1756 0.1958 0.2726
0.2743 0.3004 0.2918 0.2859 0.0138
0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774
0.7715 0.7910 0.8105 0.8068 0.8280 0.8477 0.7940 0.7488 0.7789 0.7842
0.6145 0.5139 0.5032 0.4277 0.0079
0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606
0.8473 0.8048 0.8331 0.7901 0.7316 0.7275 0.7158 0.5647 0.3178 0.2207
0.1968 0.1570 0.0738 0.0341 0.0414
0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647
0.4384 0.3670 0.4125 0.3462 0.2771 0.2730 0.2616 0.1543 0.0615 0.0383
0.0333 0.0255 0.0111 0.0049 0.0060
0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300
0.6078 0.5246 0.5767 0.5289 0.5788 0.5617 0.4537 0.4216 0.4734 0.4705
0.4525 0.4310 0.3569 0.3690 0.4413
0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563
0.8443 0.7943 0.8266 0.7972 0.8279 0.8177 0.7440 0.7184 0.7588 0.7567
0.7431 0.7261 0.6602 0.6717 0.7344
0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992
0.9989 0.9987 0.9989 0.9977 0.9984 0.9982 0.9979 0.9969 0.9978 0.9980
0.9979 0.9976 0.9969 0.9978 0.9982
1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000
0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585
0.8857 0.8525 0.8795 0.9900 0.9105 0.8760 0.7710 0.7502 0.7345 0.6733
0.5155 0.3845 0.3238 0.3260 0.2639

SCENARIO RECORD    : I/M Scenario
PARTICULATE EF     : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
PARTICLE SIZE       : 10.0
DIESEL SULFUR      : 309.0
CALENDAR YEAR       : 2005
EVALUATION MONTH    : 7
ALTITUDE            : 1
MIN/MAX TEMPERATURE: 56. 97.
FUEL RVP            : 8.0
FUEL PROGRAM        : 2 S

END OF RUN
```

## MOBILE6.2 Input File for no I/M scenario: PM2.5

```
MOBILE6 INPUT FILE :
PARTICULATES      :

RUN DATA
EXPAND LDT EFS    :
EXPAND HDDV EFS   :
EXPAND HDGV EFS   :
EXPAND BUS EFS    :
REG DIST          : 02reg05.d
DIESEL FRACTIONS  :
0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009
0.0006 0.0001 0.0003 0.0006 0.0013 0.0004 0.0004 0.0001 0.0027 0.0032
0.0097 0.0162 0.0241 0.0510 0.0706
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033
0.0048 0.0120 0.0223 0.0656 0.0616
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0007 0.0033
0.0048 0.0120 0.0223 0.0656 0.0616
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124
0.0135 0.0169 0.0209 0.0256 0.0013
0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126 0.0126
0.0115 0.0111 0.0145 0.0115 0.0129 0.0096 0.0083 0.0072 0.0082 0.0124
0.0135 0.0169 0.0209 0.0256 0.0013
0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998 0.1998
0.2578 0.2515 0.3263 0.2784 0.2963 0.2384 0.2058 0.1756 0.1958 0.2726
0.2743 0.3004 0.2918 0.2859 0.0138
0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774 0.6774
0.7715 0.7910 0.8105 0.8068 0.8280 0.8477 0.7940 0.7488 0.7789 0.7842
0.6145 0.5139 0.5032 0.4277 0.0079
0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606 0.8606
0.8473 0.8048 0.8331 0.7901 0.7316 0.7275 0.7158 0.5647 0.3178 0.2207
0.1968 0.1570 0.0738 0.0341 0.0414
0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647 0.4647
0.4384 0.3670 0.4125 0.3462 0.2771 0.2730 0.2616 0.1543 0.0615 0.0383
0.0333 0.0255 0.0111 0.0049 0.0060
0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300 0.6300
0.6078 0.5246 0.5767 0.5289 0.5788 0.5617 0.4537 0.4216 0.4734 0.4705
0.4525 0.4310 0.3569 0.3690 0.4413
0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563 0.8563
0.8443 0.7943 0.8266 0.7972 0.8279 0.8177 0.7440 0.7184 0.7588 0.7567
0.7431 0.7261 0.6602 0.6717 0.7344
0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992 0.9992
0.9989 0.9987 0.9989 0.9977 0.9984 0.9982 0.9979 0.9969 0.9978 0.9980
0.9979 0.9976 0.9969 0.9978 0.9982
1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
1.0000 1.0000 1.0000 1.0000
0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585 0.9585
0.8857 0.8525 0.8795 0.9900 0.9105 0.8760 0.7710 0.7502 0.7345 0.6733
0.5155 0.3845 0.3238 0.3260 0.2639

SCENARIO RECORD   : I/M Scenario
PARTICULATE EF    : PMGZML.CSV PMGDR1.CSV PMGDR2.CSV PMDZML.CSV PMDDR1.CSV PMDDR2.CSV
PARTICLE SIZE      : 2.5
DIESEL SULFUR     : 309.0
CALENDAR YEAR      : 2005
EVALUATION MONTH   : 7
ALTITUDE           : 1
MIN/MAX TEMPERATURE: 56. 97.
FUEL RVP           : 8.0
FUEL PROGRAM       : 2 S

END OF RUN
```

### Model Outputs

MOBILE6.2 was executed with the inputs described above to obtain composite emission factors in grams per mile (g/mi) for PM10, PM2.5, NO<sub>x</sub>, SO<sub>x</sub>, and NH<sub>3</sub>. These values were obtained for the twenty-eight vehicle classes described in the onroad section 5.2 (Table 5.2-1).

## MOBILE6.2 Output File for I/M scenario: PM10, SOx, and NH<sub>3</sub>

```
*****  
* MOBILE6.2.03 (24-Sep-2003) *  
* Input file: PM05INV\TEST\PM10.IN (file 1, run 1). *  
*****
```

```
* # # # # # # # # # # # # # # # # # # # # # # # # # # # # #  
* I/M Scenario  
* File 1, Run 1, Scenario 1.  
* # # # # # # # # # # # # # # # # # # # # # # # # # # # #
```

Calendar Year: 2005  
Month: July  
Gasoline Fuel Sulfur Content: 90. ppm  
Diesel Fuel Sulfur Content: 309. ppm  
Particle Size Cutoff: 10.00 Microns  
Reformulated Gas: Yes

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
Distribution:	0.4132	0.3281	0.1227		0.0357	0.0008	0.0021	0.0926	0.0048	1.0000

### Composite Emission Factors (q/mi):

	Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	-----	-----	-----	0.0000	0.0000
	GASPM:	0.0042	0.0046	0.0050	0.0047	0.0587	-----	-----	-----	0.0205	0.0060
	ECARBON:	-----	-----	-----	-----	-----	0.1420	0.0536	0.1685	-----	0.0158
	OCARBON:	-----	-----	-----	-----	-----	0.0401	0.0771	0.0859	-----	0.0081
	SO4:	0.0010	0.0015	0.0016	0.0016	0.0034	0.0037	0.0057	0.0192	0.0003	0.0030
Total Exhaust PM:		0.0052	0.0061	0.0066	0.0063	0.0621	0.1857	0.1363	0.2736	0.0208	0.0331
	Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
	Tire:	0.0080	0.0080	0.0080	0.0080	0.0087	0.0080	0.0080	0.0262	0.0040	0.0097
Total PM:		0.0257	0.0267	0.0272	0.0268	0.0833	0.2063	0.1569	0.3123	0.0374	0.0553
	SO2:	0.0204	0.0262	0.0342	0.0284	0.0508	0.0700	0.1090	0.2741	0.0098	0.0483
	NH3:	0.1015	0.1000	0.0990	0.0998	0.0451	0.0068	0.0068	0.0270	0.0113	0.0911

Veh. Type:	LDGT1	LDGT2	LDGT3	LDGT4	LDDT12	LDDT34
	-----	-----	-----	-----	-----	-----
VMT Mix:	0.0758	0.2523	0.0840	0.0386	0.0003	0.0018

Total PM:	0.0267	0.0267	0.0272	0.0272	0.3353	0.1285		
SO2:	0.0262	0.0262	0.0342	0.0342	0.0694	0.1153		
NH3:	0.1000	0.1000	0.0990	0.0990	0.0068	0.0068		
Veh. Type:	HDGV2B	HDGV3	HDGV4	HDGV5	HDGV6	HDGV7	HDGV8A	HDGV8B
VMT Mix:	0.0293	0.0010	0.0004	0.0012	0.0025	0.0010	0.0000	0.0000
Composite Emission Factors (g/mi):								
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
GASPM:	0.0580	0.0636	0.0709	0.0577	0.0568	0.0581	0.0598	0.0000
ECARBON:	-----	-----	-----	-----	-----	-----	-----	-----
OCARBON:	-----	-----	-----	-----	-----	-----	-----	-----
SO4:	0.0036	0.0035	0.0022	0.0024	0.0024	0.0024	0.0022	0.0000
Total Exhaust PM:	0.0616	0.0671	0.0731	0.0602	0.0593	0.0605	0.0620	0.0000
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0000
Tire:	0.0080	0.0120	0.0120	0.0120	0.0120	0.0120	0.0360	0.0000
Total PM:	0.0822	0.0917	0.0976	0.0847	0.0838	0.0851	0.1106	0.0000
SO2:	0.0486	0.0526	0.0542	0.0619	0.0613	0.0669	0.0710	0.0000
NH3:	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0000
Veh. Type:	HDDV2B	HDDV3	HDDV4	HDDV5	HDDV6	HDDV7	HDDV8A	HDDV8B
VMT Mix:	0.0092	0.0028	0.0030	0.0014	0.0071	0.0103	0.0124	0.0438
Composite Emission Factors (g/mi):								
Lead:	-----	-----	-----	-----	-----	-----	-----	-----
GASPM:	-----	-----	-----	-----	-----	-----	-----	-----
ECARBON:	0.0636	0.0556	0.0564	0.0525	0.1240	0.1257	0.1541	0.2210
OCARBON:	0.0662	0.0579	0.0587	0.0546	0.0974	0.0988	0.1211	0.0698
SO4:	0.0107	0.0118	0.0135	0.0139	0.0158	0.0182	0.0209	0.0219
Total Exhaust PM:	0.1405	0.1252	0.1286	0.1210	0.2371	0.2427	0.2961	0.3127
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0120	0.0120	0.0120	0.0120	0.0120	0.0360	0.0360
Total PM:	0.1610	0.1498	0.1531	0.1455	0.2616	0.2672	0.3446	0.3613
SO2:	0.1522	0.1686	0.1924	0.1985	0.2252	0.2597	0.2983	0.3134
NH3:	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270
Veh. Type:	GasBUS	URBAN	SCHOOL					
VMT Mix:	0.0002	0.0009	0.0017					
Composite Emission Factors (g/mi):								
Lead:	0.0000	-----	-----					
GASPM:	0.1366	-----	-----					
ECARBON:	-----	0.3119	0.3293					
OCARBON:	-----	0.2451	0.2588					
SO4:	0.0011	0.0318	0.0221					
Total Exhaust PM:	0.1377	0.5888	0.6102					
Brake:	0.0125	0.0125	0.0125					
Tire:	0.0120	0.0120	0.0120					

Total PM:	0.1622	0.6133	0.6347
SO2:	0.0788	0.4545	0.3153
NH3:	0.0451	0.0270	0.0270

---

## MOBILE6.2 Output File for I/M scenario: PM2.5

```
*****  
* MOBILE6.2.03 (24-Sep-2003)                                         *  
* Input file: PM05INV\TEST\PM25.IN (file 1, run 1).  
*****
```

```
* # # # # # # # # # # # # # # # # # # # # # # # # # # # # # # #  
* I/M Scenario  
* File 1, Run 1, Scenario 1.  
* # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
```

Calendar Year: 2005  
Month: July  
Gasoline Fuel Sulfur Content: 90. ppm  
Diesel Fuel Sulfur Content: 309. ppm  
Particle Size Cutoff: 2.50 Microns  
Reformulated Gas: Yes

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All	Veh
GVWR:		<6000	>6000	(All)							
Distribution:	0.4132	0.3281	0.1227		0.0357	0.0008	0.0021	0.0926	0.0048	1.0000	

#### Composite Emission Factors (g/mi):

	Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	-----	-----	-----	0.0000	0.0000
	GASPM:	0.0038	0.0042	0.0045	0.0043	0.0511	-----	-----	-----	0.0142	0.0054
	ECARBON:	-----	-----	-----	-----	-----	0.1306	0.0493	0.1550	-----	0.0146
	OCARBON:	-----	-----	-----	-----	-----	0.0368	0.0709	0.0791	-----	0.0075
	SO4:	0.0010	0.0015	0.0016	0.0016	0.0034	0.0037	0.0057	0.0192	0.0003	0.0030
Total Exhaust PM:		0.0048	0.0057	0.0061	0.0058	0.0545	0.1711	0.1259	0.2532	0.0145	0.0305
	Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
	Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:		0.0122	0.0131	0.0135	0.0132	0.0621	0.1785	0.1332	0.2651	0.0209	0.0383
	SO2:	0.0204	0.0262	0.0342	0.0284	0.0508	0.0700	0.1090	0.2741	0.0098	0.0488
	NH3:	0.1015	0.1000	0.0990	0.0998	0.0451	0.0068	0.0068	0.0270	0.0113	0.0911

Veh. Type:	LDGT1	LDGT2	LDGT3	LDGT4	LDGT12	LDGT34
VMT Mix:	0.0758	0.2523	0.0840	0.0386	0.0003	0.0018

### Composite Emission Factors (g/mi):

Tire:	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020		
Total PM:	0.0131	0.0131	0.0135	0.0135	0.2972	0.1071		
SO2:	0.0262	0.0262	0.0342	0.0342	0.0694	0.1153		
NH3:	0.1000	0.1000	0.0990	0.0990	0.0068	0.0068		
<hr/>								
Veh. Type:	HDGV2B	HDGV3	HDGV4	HDGV5	HDGV6	HDGV7	HDGV8A	HDGV8B
	-----	-----	-----	-----	-----	-----	-----	-----
VMT Mix:	0.0293	0.0010	0.0004	0.0012	0.0025	0.0010	0.0000	0.0000
<hr/>								
Composite Emission Factors (g/mi):								
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
GASPM:	0.0512	0.0547	0.0564	0.0481	0.0475	0.0483	0.0491	0.0000
ECARBON:	-----	-----	-----	-----	-----	-----	-----	-----
OCARBON:	-----	-----	-----	-----	-----	-----	-----	-----
SO4:	0.0036	0.0035	0.0022	0.0024	0.0024	0.0024	0.0022	0.0000
Total Exhaust PM:	0.0547	0.0583	0.0586	0.0505	0.0500	0.0507	0.0513	0.0000
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0000
Tire:	0.0020	0.0030	0.0030	0.0030	0.0030	0.0030	0.0090	0.0000
Total PM:	0.0621	0.0666	0.0670	0.0589	0.0583	0.0591	0.0657	0.0000
SO2:	0.0486	0.0526	0.0542	0.0619	0.0613	0.0669	0.0710	0.0000
NH3:	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0000
<hr/>								
Veh. Type:	HDDV2B	HDDV3	HDDV4	HDDV5	HDDV6	HDDV7	HDDV8A	HDDV8B
	-----	-----	-----	-----	-----	-----	-----	-----
VMT Mix:	0.0092	0.0028	0.0030	0.0014	0.0071	0.0103	0.0124	0.0438
<hr/>								
Composite Emission Factors (g/mi):								
Lead:	-----	-----	-----	-----	-----	-----	-----	
GASPM:	-----	-----	-----	-----	-----	-----	-----	-----
ECARBON:	0.0585	0.0511	0.0519	0.0483	0.1140	0.1157	0.1418	0.2033
OCARBON:	0.0609	0.0532	0.0540	0.0502	0.0896	0.0909	0.1114	0.0642
SO4:	0.0107	0.0118	0.0135	0.0139	0.0158	0.0182	0.0209	0.0219
Total Exhaust PM:	0.1301	0.1162	0.1194	0.1124	0.2194	0.2247	0.2741	0.2895
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0030	0.0030	0.0030	0.0030	0.0030	0.0090	0.0090
Total PM:	0.1374	0.1245	0.1277	0.1207	0.2277	0.2330	0.2884	0.3038
SO2:	0.1522	0.1686	0.1924	0.1985	0.2252	0.2597	0.2983	0.3134
NH3:	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270
<hr/>								
Veh. Type:	GasBUS	URBAN	SCHOOL					
	-----	-----	-----					
VMT Mix:	0.0002	0.0009	0.0017					
<hr/>								
Composite Emission Factors (g/mi):								
Lead:	0.0000	-----	-----					
GASPM:	0.0984	-----	-----					
ECARBON:	-----	0.2870	0.3030					
OCARBON:	-----	0.2255	0.2381					
SO4:	0.0011	0.0318	0.0221					
Total Exhaust PM:	0.0995	0.5442	0.5631					
Brake:	0.0053	0.0053	0.0053					

Tire:	0.0030	0.0030	0.0030
Total PM:	0.1079	0.5525	0.5715
SO2:	0.0788	0.4545	0.3153
NH3:	0.0451	0.0270	0.0270

---

## MOBILE6.2 Output File for I/M scenario: NOx

```
*****
* MOBILE6.2.03 (24-Sep-2003) *
* Input file: PM05INV\TEST\PM10.IN (file 1, run 1). *
*****  
  
* Reading non-default I/M CUTPOINTS from the following external
* data file: CUTPNT05.D  
  
* Reading Registration Distributions from the following external
* data file: 02REG05.D  
  
* # # # # # # # # # # # # # # # # # # # # # #
* I/M Scenario
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # #  
  
* Reading PM Gas Carbon ZML Levels
* from the external data file PMGZML.CSV  
  
* Reading PM Gas Carbon DR1 Levels
* from the external data file PMGDR1.CSV  
  
* Reading PM Gas Carbon DR2 Levels
* from the external data file PMGDR2.CSV  
  
* Reading PM Diesel Zero Mile Levels
* from the external data file PMDZML.CSV  
  
* Reading the First PM Deterioration Rates
* from the external data file PMDDR1.CSV  
  
* Reading the Second PM Deterioration Rates
* from the external data file PMDDR2.CSV
M616 Comment:
    User has supplied post-1999 sulfur levels.
*** I/M credits for Tech1&2 vehicles were read from the following external
    data file: TECH12.D
M 48 Warning:
    there are no sales for vehicle class HDGV8b  
  
* Reading Ammonia (NH3) Basic Emission Rates
* from the external data file PMNH3BER.D  
  
* Reading Ammonia (NH3) Sulfur Deterioration Rates
* from the external data file PMNH3SDR.D
```

Calendar Year: 2005

Month: July  
 Altitude: Low  
 Minimum Temperature: 56.0 (F)  
 Maximum Temperature: 97.0 (F)  
 Absolute Humidity: 75. grains/lb  
 Fuel Sulfur Content: 90. ppm

Exhaust I/M Program: Yes  
 Evap I/M Program: Yes  
 ATP Program: Yes  
 Reformulated Gas: Yes

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.4132	0.3281	0.1227		0.0357	0.0008	0.0021	0.0926	0.0048	1.0000

**Composite Emission Factors (g/mi):**

Composite VOC :	0.913	1.099	1.406	1.183	1.353	0.731	0.817	0.500	3.45	1.024
Composite CO :	9.53	11.89	13.47	12.32	10.33	1.814	1.411	2.588	16.33	10.185
Composite NOX :	0.757	0.975	1.314	1.067	4.183	1.563	1.365	11.251	1.24	1.995

Veh. Type:	LDGT1	LDGT2	LDGT3	LDGT4	LDDT12	LDDT34
VMT Mix:	0.0758	0.2523	0.0840	0.0386	0.0003	0.0018

**Composite Emission Factors (g/mi):**

Composite VOC :	1.058	1.111	1.388	1.445	2.635	0.528
Composite CO :	11.37	12.05	13.36	13.69	4.615	0.902
Composite NOX :	0.779	1.034	1.191	1.581	2.736	1.147

Veh. Type:	HDGV2B	HDGV3	HDGV4	HDGV5	HDGV6	HDGV7	HDGV8A	HDGV8B
VMT Mix:	0.0293	0.0010	0.0004	0.0012	0.0025	0.0010	0.0000	0.0000

**Composite Emission Factors (g/mi):**

Composite VOC :	1.244	1.638	2.594	1.701	1.628	1.864	2.200	0.000
Composite CO :	9.23	16.42	20.97	12.46	11.88	14.73	16.50	0.00
Composite NOX :	4.021	4.440	4.766	4.841	4.785	5.372	5.957	0.000

Veh. Type:	HDDV2B	HDDV3	HDDV4	HDDV5	HDDV6	HDDV7	HDDV8A	HDDV8B
VMT Mix:	0.0092	0.0028	0.0030	0.0014	0.0071	0.0103	0.0124	0.0438

**Composite Emission Factors (g/mi):**

Composite VOC :	0.230	0.251	0.297	0.319	0.441	0.545	0.501	0.583
Composite CO :	0.958	1.122	1.281	1.373	1.566	1.954	2.780	3.381
Composite NOX :	3.996	4.443	5.286	5.642	7.711	9.578	12.217	14.339

Veh. Type:	GasBUS	URBAN	SCHOOL
	-----	-----	-----

VMT Mix: 0.0002 0.0009 0.0017

---

Composite Emission Factors (g/mi):

Composite VOC :	5.426	0.534	0.695
Composite CO :	65.48	4.518	2.329
Composite NOX :	7.827	17.002	11.940

---

## MOBILE6.2 Output File for no I/M scenario: PM10, SOx, and NH<sub>3</sub>

\*\*\*\*\*
\* MOBILE6.2.03 (24-Sep-2003) \*
\* Input file: PM05INV\TEST\PM10N.IN (file 1, run 1). \*
\*\*\*\*\*

\* #
\* I/M Scenario
\* File 1, Run 1, Scenario 1.
\* #

Calendar Year: 2005  
Month: July  
Gasoline Fuel Sulfur Content: 90. ppm  
Diesel Fuel Sulfur Content: 309. ppm  
Particle Size Cutoff: 10.00 Microns  
Reformulated Gas: Yes

Vehicle Type: GVWR:	LDGV <6000	LDGT12 >6000	LDGT34 (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh	
VMT Distribution:	0.4132	0.3281	0.1227	-----	0.0357	0.0008	0.0021	0.0926	0.0048	1.0000

### Composite Emission Factors (g/mi):

Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	-----	-----	-----	0.0000	0.0000
GASPM:	0.0042	0.0046	0.0050	0.0047	0.0587	-----	-----	-----	0.0205	0.0060
ECARBON:	-----	-----	-----	-----	0.1420	0.0536	0.1685	-----	0.0158	
OCARBON:	-----	-----	-----	-----	0.0401	0.0771	0.0859	-----	0.0081	
SO4:	0.0010	0.0015	0.0016	0.0016	0.0034	0.0037	0.0057	0.0192	0.0003	0.0030
Total Exhaust PM:	0.0052	0.0061	0.0066	0.0063	0.0621	0.1857	0.1363	0.2736	0.0208	0.0331
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0087	0.0080	0.0080	0.0262	0.0040	0.0097
Total PM:	0.0257	0.0267	0.0272	0.0268	0.0833	0.2063	0.1569	0.3123	0.0374	0.0553
SO2:	0.0204	0.0262	0.0342	0.0284	0.0508	0.0700	0.1090	0.2741	0.0098	0.0488
NH3:	0.1015	0.1000	0.0990	0.0998	0.0451	0.0068	0.0068	0.0270	0.0113	0.0911

Veh. Type:	LDGT1	LDGT2	LDGT3	LDGT4	LDDT12	LDDT34
VMT Mix:	0.0758	0.2523	0.0840	0.0386	0.0003	0.0018

### Composite Emission Factors (g/mi):

Lead:	0.0000	0.0000	0.0000	0.0000	-----	-----
GASPM:	0.0046	0.0046	0.0050	0.0050	-----	-----
ECARBON:	-----	-----	-----	-----	0.1276	0.0418
OCARBON:	-----	-----	-----	-----	0.1836	0.0601
SO4:	0.0015	0.0015	0.0016	0.0016	0.0036	0.0060
Total Exhaust PM:	0.0061	0.0061	0.0066	0.0066	0.3148	0.1079
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080
Total PM:	0.0267	0.0267	0.0272	0.0272	0.3353	0.1285

SO2:	0.0262	0.0262	0.0342	0.0342	0.0694	0.1153		
NH3:	0.1000	0.1000	0.0990	0.0990	0.0068	0.0068		
Veh. Type:	HDGV2B	HDGV3	HDGV4	HDGV5	HDGV6	HDGV7	HDGV8A	HDGV8B
VMT Mix:	0.0293	0.0010	0.0004	0.0012	0.0025	0.0010	0.0000	0.0000
Composite Emission Factors (g/mi):								
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GASPM:	0.0580	0.0636	0.0709	0.0577	0.0568	0.0581	0.0598	0.0000
ECARBON:	-----	-----	-----	-----	-----	-----	-----	-----
OCARBON:	-----	-----	-----	-----	-----	-----	-----	-----
SO4:	0.0036	0.0035	0.0022	0.0024	0.0024	0.0024	0.0022	0.0000
Total Exhaust PM:	0.0616	0.0671	0.0731	0.0602	0.0593	0.0605	0.0620	0.0000
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0000
Tire:	0.0080	0.0120	0.0120	0.0120	0.0120	0.0120	0.0360	0.0000
Total PM:	0.0822	0.0917	0.0976	0.0847	0.0838	0.0851	0.1106	0.0000
SO2:	0.0486	0.0526	0.0542	0.0619	0.0613	0.0669	0.0710	0.0000
NH3:	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0000
Veh. Type:	HDDV2B	HDDV3	HDDV4	HDDV5	HDDV6	HDDV7	HDDV8A	HDDV8B
VMT Mix:	0.0092	0.0028	0.0030	0.0014	0.0071	0.0103	0.0124	0.0438
Composite Emission Factors (g/mi):								
Lead:	-----	-----	-----	-----	-----	-----	-----	-----
GASPM:	-----	-----	-----	-----	-----	-----	-----	-----
ECARBON:	0.0636	0.0556	0.0564	0.0525	0.1240	0.1257	0.1541	0.2210
OCARBON:	0.0662	0.0579	0.0587	0.0546	0.0974	0.0988	0.1211	0.0698
SO4:	0.0107	0.0118	0.0135	0.0139	0.0158	0.0182	0.0209	0.0219
Total Exhaust PM:	0.1405	0.1252	0.1286	0.1210	0.2371	0.2427	0.2961	0.3127
Brake:	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125
Tire:	0.0080	0.0120	0.0120	0.0120	0.0120	0.0120	0.0360	0.0360
Total PM:	0.1610	0.1498	0.1531	0.1455	0.2616	0.2672	0.3446	0.3613
SO2:	0.1522	0.1686	0.1924	0.1985	0.2252	0.2597	0.2983	0.3134
NH3:	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270
Veh. Type:	GasBUS	URBAN	SCHOOL					
VMT Mix:	0.0002	0.0009	0.0017					
Composite Emission Factors (g/mi):								
Lead:	0.0000	-----	-----					
GASPM:	0.1366	-----	-----					
ECARBON:	-----	0.3119	0.3293					
OCARBON:	-----	0.2451	0.2588					
SO4:	0.0011	0.0318	0.0221					
Total Exhaust PM:	0.1377	0.5888	0.6102					
Brake:	0.0125	0.0125	0.0125					
Tire:	0.0120	0.0120	0.0120					
Total PM:	0.1622	0.6133	0.6347					

SO2:	0.0788	0.4545	0.3153
NH3:	0.0451	0.0270	0.0270

---

## MOBILE6.2 Output File for no I/M scenario: PM2.5

```
*****
* MOBILE6.2.03 (24-Sep-2003) *
* Input file: PM05INV\TEST\PM25N.IN (file 1, run 1). *
*****
```

```
* # # # # # # # # # # # # # # # # # #
* I/M Scenario
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # #
```

Calendar Year: 2005  
 Month: July  
 Gasoline Fuel Sulfur Content: 90. ppm  
 Diesel Fuel Sulfur Content: 309. ppm  
 Particle Size Cutoff: 2.50 Microns  
 Reformulated Gas: Yes

Vehicle Type: GVWR:	LDGV <6000	LDGT12 >6000	LDGT34 (All)	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT Distribution:	0.4132	0.3281	0.1227	-----	0.0357	0.0008	0.0021	0.0926	0.0048	1.0000

### Composite Emission Factors (g/mi):

Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	-----	-----	-----	0.0000	0.0000
GASPM:	0.0038	0.0042	0.0045	0.0043	0.0511	-----	-----	-----	0.0142	0.0054
ECARBON:	-----	-----	-----	-----	0.1306	0.0493	0.1550	-----	0.0146	-----
OCARBON:	-----	-----	-----	-----	0.0368	0.0709	0.0791	-----	-----	0.0075
SO4:	0.0010	0.0015	0.0016	0.0016	0.0034	0.0037	0.0057	0.0192	0.0003	0.0030
Total Exhaust PM:	0.0048	0.0057	0.0061	0.0058	0.0545	0.1711	0.1259	0.2532	0.0145	0.0305
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0122	0.0131	0.0135	0.0132	0.0621	0.1785	0.1332	0.2651	0.0209	0.0383
SO2:	0.0204	0.0262	0.0342	0.0284	0.0508	0.0700	0.1090	0.2741	0.0098	0.0488
NH3:	0.1015	0.1000	0.0990	0.0998	0.0451	0.0068	0.0068	0.0270	0.0113	0.0911

Veh. Type:	LDGT1	LDGT2	LDGT3	LDGT4	LDDT12	LDDT34
VMT Mix:	0.0758	0.2523	0.0840	0.0386	0.0003	0.0018

### Composite Emission Factors (g/mi):

Lead:	0.0000	0.0000	0.0000	0.0000	-----	-----
GASPM:	0.0042	0.0042	0.0045	0.0045	-----	-----
ECARBON:	-----	-----	-----	-----	0.1174	0.0384
OCARBON:	-----	-----	-----	-----	0.1689	0.0553
SO4:	0.0015	0.0015	0.0016	0.0016	0.0036	0.0060
Total Exhaust PM:	0.0057	0.0057	0.0061	0.0061	0.2899	0.0998
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Total PM:	0.0131	0.0131	0.0135	0.0135	0.2972	0.1071

SO2:	0.0262	0.0262	0.0342	0.0342	0.0694	0.1153		
NH3:	0.1000	0.1000	0.0990	0.0990	0.0068	0.0068		
Veh. Type:	HDGV2B	HDGV3	HDGV4	HDGV5	HDGV6	HDGV7	HDGV8A	HDGV8B
VMT Mix:	0.0293	0.0010	0.0004	0.0012	0.0025	0.0010	0.0000	0.0000
Composite Emission Factors (g/mi):								
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GASPM:	0.0512	0.0547	0.0564	0.0481	0.0475	0.0483	0.0491	0.0000
ECARBON:	-----	-----	-----	-----	-----	-----	-----	-----
OCARBON:	-----	-----	-----	-----	-----	-----	-----	-----
SO4:	0.0036	0.0035	0.0022	0.0024	0.0024	0.0024	0.0022	0.0000
Total Exhaust PM:	0.0547	0.0583	0.0586	0.0505	0.0500	0.0507	0.0513	0.0000
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0000
Tire:	0.0020	0.0030	0.0030	0.0030	0.0030	0.0030	0.0090	0.0000
Total PM:	0.0621	0.0666	0.0670	0.0589	0.0583	0.0591	0.0657	0.0000
SO2:	0.0486	0.0526	0.0542	0.0619	0.0613	0.0669	0.0710	0.0000
NH3:	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	0.0000
Veh. Type:	HDDV2B	HDDV3	HDDV4	HDDV5	HDDV6	HDDV7	HDDV8A	HDDV8B
VMT Mix:	0.0092	0.0028	0.0030	0.0014	0.0071	0.0103	0.0124	0.0438
Composite Emission Factors (g/mi):								
Lead:	-----	-----	-----	-----	-----	-----	-----	-----
GASPM:	-----	-----	-----	-----	-----	-----	-----	-----
ECARBON:	0.0585	0.0511	0.0519	0.0483	0.1140	0.1157	0.1418	0.2033
OCARBON:	0.0609	0.0532	0.0540	0.0502	0.0896	0.0909	0.1114	0.0642
SO4:	0.0107	0.0118	0.0135	0.0139	0.0158	0.0182	0.0209	0.0219
Total Exhaust PM:	0.1301	0.1162	0.1194	0.1124	0.2194	0.2247	0.2741	0.2895
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0030	0.0030	0.0030	0.0030	0.0030	0.0090	0.0090
Total PM:	0.1374	0.1245	0.1277	0.1207	0.2277	0.2330	0.2884	0.3038
SO2:	0.1522	0.1686	0.1924	0.1985	0.2252	0.2597	0.2983	0.3134
NH3:	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270	0.0270
Veh. Type:	GasBUS	URBAN	SCHOOL					
VMT Mix:	0.0002	0.0009	0.0017					
Composite Emission Factors (g/mi):								
Lead:	0.0000	-----	-----					
GASPM:	0.0984	-----	-----					
ECARBON:	-----	0.2870	0.3030					
OCARBON:	-----	0.2255	0.2381					
SO4:	0.0011	0.0318	0.0221					
Total Exhaust PM:	0.0995	0.5442	0.5631					
Brake:	0.0053	0.0053	0.0053					
Tire:	0.0030	0.0030	0.0030					
Total PM:	0.1079	0.5525	0.5715					

SO2:	0.0788	0.4545	0.3153
NH3:	0.0451	0.0270	0.0270

---

## MOBILE6.2 Output File for no I/M scenario: NOx

```
*****
* MOBILE6.2.03 (24-Sep-2003) *
* Input file: PM05INV\TEST\PM10N.IN (file 1, run 1). *
*****  
  
* Reading Registration Distributions from the following external
* data file: 02REG05.D
* # # # # # # # # # # # # # # #
* I/M Scenario
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # #  
  
* Reading PM Gas Carbon ZML Levels
* from the external data file PMGZML.CSV  
  
* Reading PM Gas Carbon DR1 Levels
* from the external data file PMGDR1.CSV  
  
* Reading PM Gas Carbon DR2 Levels
* from the external data file PMGDR2.CSV  
  
* Reading PM Diesel Zero Mile Levels
* from the external data file PMDZML.CSV  
  
* Reading the First PM Deterioration Rates
* from the external data file PMDDR1.CSV  
  
* Reading the Second PM Deterioration Rates
* from the external data file PMDDR2.CSV
M616 Comment:
    User has supplied post-1999 sulfur levels.
M 48 Warning:
    there are no sales for vehicle class HDGV8b  
  
* Reading Ammonia (NH3) Basic Emission Rates
* from the external data file PMNH3BER.D  
  
* Reading Ammonia (NH3) Sulfur Deterioration Rates
* from the external data file PMNH3SDR.D  
  
    Calendar Year: 2005
        Month: July
        Altitude: Low
    Minimum Temperature: 56.0 (F)
    Maximum Temperature: 97.0 (F)
        Absolute Humidity: 75. grains/lb
    Fuel Sulfur Content: 90. ppm
```

Exhaust I/M Program: No  
 Evap I/M Program: No  
 ATP Program: No  
 Reformulated Gas: Yes

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT (All)	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:	<6000	>6000								
VMT Distribution:	0.4132	0.3281	0.1227		0.0357	0.0008	0.0021	0.0926	0.0048	1.0000

Composite Emission Factors (g/mi):

Composite VOC :	1.009	1.213	1.526	1.298	1.414	0.731	0.817	0.500	3.45	1.118
Composite CO :	11.30	13.64	15.43	14.13	11.63	1.814	1.411	2.588	16.33	11.774
Composite NOX :	0.863	1.083	1.420	1.175	4.214	1.563	1.365	11.251	1.24	2.088

Veh. Type:	LDGT1	LDGT2	LDGT3	LDGT4	LDDT12	LDDT34
VMT Mix:	0.0758	0.2523	0.0840	0.0386	0.0003	0.0018

Composite Emission Factors (g/mi):

Composite VOC :	1.184	1.222	1.510	1.562	2.635	0.528
Composite CO :	13.25	13.76	15.36	15.58	4.615	0.902
Composite NOX :	0.888	1.141	1.298	1.688	2.736	1.147

Veh. Type:	HDGV2B	HDGV3	HDGV4	HDGV5	HDGV6	HDGV7	HDGV8A	HDGV8B
VMT Mix:	0.0293	0.0010	0.0004	0.0012	0.0025	0.0010	0.0000	0.0000

Composite Emission Factors (g/mi):

Composite VOC :	1.298	1.724	2.725	1.778	1.702	1.954	2.313	0.000
Composite CO :	10.35	18.72	24.22	14.07	13.40	16.71	18.91	0.00
Composite NOX :	4.052	4.461	4.805	4.875	4.819	5.408	6.007	0.000

Veh. Type:	HDDV2B	HDDV3	HDDV4	HDDV5	HDDV6	HDDV7	HDDV8A	HDDV8B
VMT Mix:	0.0092	0.0028	0.0030	0.0014	0.0071	0.0103	0.0124	0.0438

Composite Emission Factors (g/mi):

Composite VOC :	0.230	0.251	0.297	0.319	0.441	0.545	0.501	0.583
Composite CO :	0.958	1.122	1.281	1.373	1.566	1.954	2.780	3.381
Composite NOX :	3.996	4.443	5.286	5.642	7.711	9.578	12.217	14.339

Veh. Type:	GasBUS	URBAN	SCHOOL
VMT Mix:	0.0002	0.0009	0.0017

Composite Emission Factors (g/mi):

Composite VOC :	5.806	0.534	0.695
Composite CO :	76.80	4.518	2.329
Composite NOX :	7.874	17.002	11.940